JP 09-124774 to Kobayashi (hereinafter "Kobayashi"). Applicants respectfully traverse these rejections.

Claim 3 recites, in its entirety, "A method for fabricating a multi-layered unit for a multi-layered ceramic electronic component comprising a step of printing a dielectric paste including ethyl cellulose having an apparent weight average molecular weight of 110,000 to 190,000 as a binder and at least one kind of solvent selected from the group consisting of isobornyl acetate, α-terpinyl acetate, I-dihydrocarvyl acetate, I-menthyl acetate, I-menthone, I-perillyl acetate and I-carvyl acetate on a ceramic green sheet containing a butyral system resin as a binder in a predetermined pattern, thereby forming a spacer layer, the degree of polymerization of the butyral system resin is equal to or larger than 1000, the degree of butyralization of the butyral system resin being equal to or larger than 64 mol % and equal to or smaller than 78 mol %."

Accordingly, an embodiment corresponding to claim 3 requires printing a dielectric paste containing (i) a solvent selected from a specific group of solvents and (ii) an ethyl cellulose binder having an apparent weight average molecular weight within a specific range on a green sheet containing a butyral system resin having (i) a specific degree of polymerization and (ii) a specific degree of butyralization. The use of this method as specifically claimed imparts unexpected results in the form of reducing or substantially eliminating defects, such as voids, in a resulting multi-layered capacitor formed of a number of units containing said green sheet, an electrode layer and a dielectric spacer layer formed by said printing of the dielectric paste. See, *e.g.*, paragraph 0017, of Applicants' Patent Application Publication No. 2008/0233270.

As discussed in more detail below, the cited references do not singly, or in any motivated combination, teach or suggest a method having the aforementioned features. For example, even if each element of the claimed method are individually present in the cited references as asserted in the Office Action, there is no supportable rationale for asserting that those of ordinary skill in the art would have recognized the benefits (*i.e.*, preventing or substantially elimination defects, such as voids, fissures and/or wrinkles, in resultant multi-layered capacitors, for example) of combining the elements in the manner claimed. Merely

pointing to the presence of all claim elements in the prior art is not a complete statement of a rejection for obviousness. There must be some articulated rationale for making the asserted combination. None exists here.

In making the present rejection, the Examiner asserts that Donahue generally discloses printing a dielectric paste containing a solvent and ethyl cellulose binder on a ceramic green sheet employing butyral resins, but admits that Donahue does not disclose the following claim limitations:

(i) the specific range of the apparent weight average molecular weight of the ethyl cellulose binder;

(ii) the specific solvents;

(iii) the specific range of the degree of polymerization of the butyral system resin of the binder of the ceramic green sheet; and

(iv) the specific range of the degree of butyralization of the butyral system resin of the binder of the ceramic green sheet.

The Examiner therefore essentially admits that the primary reference relied upon in making the present rejections fails to teach nearly every specific limitation of the claimed invention. As such, the Examiner opines (i) that it would be obvious to arrive at the specific claimed apparent weight average molecular weight of the ethyl cellulose binder through "routine experimentation" to arrive at an optimum molecular weight, (ii) that it would be obvious to employ any solvent having a boiling point similar to the solvents disclosed in Donahue with a reasonable expectation of successfully forming a dielectric paste, and (iii) that it would be obvious to use the polyvinylbutyral resin disclosed by Kobayashi (degree of polymerization of 1,500 to 2,500 and degree of butrylization of at least 65 mol%) to obtain desired properties useful for films. Notably absent in this piecemeal analysis is any articulated rationale for collectively combining the aforementioned limitations in the manner claimed. This is not surprising, however, as there is no rationale for making the proposed combination absent the unexpected benefits disclosed by the present application. Only in view of Applicants' disclosure is it recognized that defects can be reduced or substantially eliminated in, for example, resultant multi-layered capacitors formed in part using the method recited in claim 3.

Furthermore, the asserted rationales for making each of the piecemeal modifications are in themselves flawed.

For example, as indicated above, the Examiner opines that it would be obvious to arrive at the specific apparent weight average molecular weight of the ethyl cellulose binder recited in claim 3 through "routine experimentation" to arrive at an optimum molecular weight. However, "a particular parameter must first be recognized as a result-effective variable, *i.e.*, a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation." MPEP § 2144.05 IIB. There is no indication in the cited references that varying the apparent weight average molecular weight of the ethyl cellulose of dielectric paste will achieve a reduction in defects of resultant electrical components formed in part by using such a paste. Consequently, the Examiner's reliance on "routine experimentation" is misplaced.

As another example, the Examiner opines that it would be obvious to employ any solvent having a boiling point similar to the solvents disclosed in Donahue with a reasonable expectation of successfully forming a dielectric paste. This rationale is flawed in that it presupposes one of skill in the art would be motivated to replace the explicitly disclosed solvents in Donahue with an alternate non-disclosed solvent for the purposes of forming a dielectric paste without any art-recognized benefit of doing so. Put another way, absent the benefits taught in the present application, why would one of skill in the art make the asserted modification? They would not. The successful formation of a dielectric paste is not in itself a motivating factor (*i.e.*, the mere fact that references can be combined or modified does not render the resultant combination obvious). There must be some motivation or articulated reasoning for doing so. In this case, there is no indication in Donahue or the other cited references to use the specific solvents in the manner recited in claim 3. Rather, Donahue explicitly discloses the use of a preferred solvent which Applicants have disclosed as causing voids, fissures or wrinkles – a direct contradiction to the problems to be solved by the present invention (*i.e.*, preventing voids, fissures and wrinkles in multi-layered ceramic electronic components). See, *e.g.*, paragraphs 0012 and 0017, of Applicants' Patent Application Publication No. 2008/0233270. In this

manner, Donahue not only fails to teach or suggest the claimed solvents, but also leads away from the claimed subject matter by indicating that β-terpineol is a preferred solvent.

As yet another example, the Examiner points to Kobayashi and the use of polyvinyl butyral resin as a constituent of an anisotropically conductive film having a degree of polymerization of 1,500 to 2,500 and a degree of butyralization of at least 65 mol % (which overlaps with the properties recited in claim 3) and asserts that it would be obvious to use the polyvinyl butyral resin of Kobayashi to obtain desired properties useful for films. Applicants respectfully disagree. An anisotropic conductive film is an interconnect system commonly used in Liquid Crystal Display (LCD) manufacturing to make electrical and mechanical connections from the driver electronics to the glass substrates of the LCD. The technical field to which the anisotropic conductive film of Kobayashi belongs is thus quite different from that of the claimed invention. Consequently, one of ordinary skill in the art of multi-layered ceramic electronic components would not look to Kobayashi to formulate a ceramic green sheet having the claimed properties recited in claim 3.

In view of the above, Applicants respectfully submit that the Examiner has failed to provide proper reasoning or motivation for modifying the cited references to arrive at the claimed subject matter, and as such, has failed to establish a *prima facie* case of obviousness. Claim 3 is therefore allowable. Because claim 4 depends from allowable independent claim 3 and also because it includes additional limitations, claim 4 is likewise allowable.

In light of the above remarks, Applicants respectfully submit that all pending claims are allowable. If questions remain, the Examiner is invited to contact applicants' representative, Jared M. Barrett, by email at JaredB.docketing@SeedIP.com or by telephone at (206) 622-4900.

Respectfully submitted,

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